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ABSTRACT

The National Elevator Industry Educational Program (NEIEP) is a training trust established by an industry trade association and a union to maintain the supply of well-trained competent elevator mechanics. The NEIEP conducts Train the Trainer seminars that present a skill-building program to give each instructor a range of techniques and strategies for teaching and learning. A qualitative evaluation of the effectiveness of one of the seminars was conducted. A Level 1 (introductory) seminar was evaluated by participants at a Level 2 (more advanced) seminar about a year later. Participants indicated the impact that the initial seminar had on their performance as an instructor. Data from the evaluation were classified according to competency area and then presented to participants on the second day of the Level 2 seminar. The purpose was to illustrate techniques of formative evaluation for the seminar participants. Several inferences about the impact of the Level 1 seminar are possible. Students learned and put into practice some new planning and instructional techniques. They retained an acceptable amount of information about adult learning and applied it to some degree, and they learned and used evaluation techniques. The Level 1 seminar appears successful in providing basic cognitive knowledge and promoting performance change. Five tables summarize evaluation questions and responses. (SLD)

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An Example of a Qualitative Evaluation of Performance Change from a Train the Trainer Seminar Intervention

Paper Presented at the Annual Meeting
of the
American Evaluation Association

Seattle, Washington

November 5 - 7, 1992

by

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TRAIN THE TRAINER SEMINAR QUALITATIVE EVALUATION

Instructional Development Technical Report
Number 26

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National Elevator Industry Educational Program
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Train the Trainer Seminar Qualitative Evaluation

The National Elevator Industry Educational Program (N.E.I.E.P.) is a training trust created as part of a collective bargaining benefit package between the National Elevator Industries, Inc. (N.E.I.I.), an Industry Trade Association representing most of the nation's elevator manufacturing and service companies, and the International Union of Elevator Constructors (I.U.E.C.). N.E.I.E.P., also called the Program, is responsible for the design, development, and evaluation of courses of instruction and alternative learning experiences for classroom and home study programs in the construction, service, maintenance and modernization of elevators, escalators, and dumb waiters for Helpers (apprentice) and Mechanics (journeymen) members of the union. The stated goal of the Program is to maintain the supply of well-trained, competent elevator mechanics for the industry. Pursuant to this end, N.E.I.E.P. offers Train the Trainer Seminars to field subject matter experts (SME's) to instruct in their respective Local's N.E.I.E.P. Training school.

Instructors in the Program have a great deal of technical knowledge about the industry. They also have a sincere interest in helping new helpers prepare to perform as competent elevator mechanics. However, they often assume this instructional role with little or no formal teaching preparation or experience.

In 1980, N.E.I.E.P. commissioned a project to design, develop, implement and evaluate a series of seminars appropriate for training instructors in basic and advanced instructional techniques. A national needs assessment was conducted in order to collect specific data concerning the strengths and weaknesses of the instructional program. Based on the results of these activities, a Level I seminar was designed and conducted for field instructors dealing with basic instructional skills and techniques.

A Level I Seminar is a two day introductory learning experience that introduces the SME to a variety of teaching/ learning concepts identified as eight Competency Areas. These Competency Areas consist of instruction on thirteen topics: one, Learning Theory and Practice- The adult Learner; two, Planning for instruction- Instructional Analysis; three, Management of the Instructional Process- The Process of Instruction and Selecting and Evaluation Media for Instruction; four, Presentation Techniques- Utilizing Media for Instruction, Promoting Learner Participation and Designing/Producing Instructional Materials; five, Motivation- Basic Motivation Techniques; six, Strategies for Teaching Techniques; seven, Communication- Effective Speaking Techniques and Eliciting Learning Feedback; and eight, Evaluation- Instructor/Learner Assessment Techniques. The Seminar is designed to be conducted in fifteen instructional hours. The pace is rapid. Emphasis of this seminar is on instructors acquiring the basic skills to successfully conduct the basic teaching activities required of N.E.I.E.P. instructors throughout the United States; that is, training individuals to be capable and competent elevator mechanics. The purpose of this seminar is not to tell instructors how to teach, but to present a skill-building program

that provides each instructor with a range of basic and advanced techniques, strategies and applications that may be considered for any number of teaching and learning situations.

> *For this to occur, teaching in the NEIEP program should be viewed as facilitating the student's use of learning resources. These resources may be an instructor's knowledge of specific elevator-related subject matter or that of other elevator professionals, contributions from students or specific materials such as manufacturer's guides, models, slides and so forth. A good NEIEP instructor establishes an environment where students can interact with him/her, each other and the subject matter in an atmosphere that allows both the students and instructor to work together toward a common goal. That is, training individuals to be capable and competent elevator mechanics.* (Patterson & DiPaolo, *1981,* p.2)

Most of the areas within this seminar are addressed on an application basis with technical and theoretical explanation kept to a minimum. Emphasis is placed on ways of directly transferring learning from the seminar to the actual instructional setting of each instructor.

After SME's are identified and selected by their respective Local to become instructors, they are invited to attend a Level I, Training the Instructor Seminar. This seminar program is unique for three reasons. First, the program is designed on careful analysis of instructor needs on a national basis, not upon any single individual or regional group. Second, the program is specifically designed for the instructor whose needs vary in complexity and detail from other industry groups having teaching/learning problems. Third, these presentations do not follow any single theory or approach as the only way to conduct a seminar or to acquire instructional skills. The format is basic and practical and provides each instructor with a foundation upon which he can add his own personal preferences and style.

The formal evaluation given at the conclusion of the Level I Seminar is a participant reaction Likert Semantic Differential instrument soliciting responses to perceptions of general performance. This type of data is typical of the data collected at similar seminars and workshops. Table 1 is a compilation of the percentage of responses for the 1990/91 instructional season. While the instrument is of value in determining the acceptance of the seminar content, presenters and support materials and services, it is does not gather data in regard to effectiveness in eliciting behavioral change over time. Question 10 is an open-ended request for pertinent information. Table 2 is a random selection of typical statements taken from two consecutive seminars. Again, while these data may be important for formative evaluation of seminar elements, they do not measure seminar effectiveness on instructors in the instructional setting. Over the years, the data have been remarkably consistent in ratings and comments.

Table 1

SEMINAR EVALUATION RESPONSES BY PERCENTAGE

Seminar Participant Reaction Evaluation Instrument

1. During this seminar I learned:

   [100] a great deal [0] some things [0] nothing

2. Given my previous background as a NEIEP instructor, most of this material was:

   [3] advanced [97] about right [0] too basic

3. The instruction in the seminar was paced:

   [7] too slow [83] fast [10] about right [0] slow [0] too slow

4. Generally, the seminar instructional activities were:

   [99] clear [1] adequate [0] confusing

5. As a NEIEP instructor, this seminar:

   [89] met my needs [11] met some of my needs [0] didn't meet my needs

6. Overall, I would rate the seminar materials (workbook, resource book, transparencies, films, etc.) as:

   [92] excellent [8] good [0] fair [0] poor

7. Overall, I rate the performance of the seminar leaders as:

   [99] excellent [1] good [0] fair [0] poor

8. I believe my attending this seminar was:

   [100] worthwhile [0] somewhat useful [0] a waste of my time

9. Overall, I would rate this seminar as:

   [91] excellent [9] good [0] fair [0] poor

10. On the back, list any comments about the seminar facilities, lodging, meals, consultant performance, in-class and homework activities, pre-seminar materials, evaluations, etc.

(Torrence, 1991, pps.4,6,8)

Table 2

SELECTION OF TYPICAL OPEN-ENDED EVALUATION STATEMENTS

Seminar Evaluation Instrument Open-end Responses

- I found this seminar excellent in every aspect- thank you
- I commend the organizers of this seminar for giving me the new tools of confidence I will be bringing to my own classroom. It would be great if we could extend this to learn even more.
- Very fast paced, lots of information.
- I learned most at the end of the seminar. The materials are good, but in no special order. I would like a good index. I would like more time spent on how to overcome speech problems. Mainly the spring board entrance.
- For the first time it was a little overlearning, but it all fell into place. Thank you for asking me here.
- I have a better understanding of NEIEP's operation. I can use this information to help my students.
- Need more time, Dave's input was helpful, Hotel was great. Need more choice in meals; and more time to prepare. To get an honest evaluation on technic [sic. technique]. Video tape was more fun than I expected.
- Although the pace was fast, after a period of time, it was clear that the use of Mechanical equipment is a advantage for the teacher.
- Everything was fine.
- Found lighting inadequate
- Very good job, glad you let me attend.
- The room is too cold, poor lighting, no choice of meals, Keep Amos and Andy - excellent teaching "TEAM".
- Amos and Andy Great. Keep Them!!
- Overall I enjoyed the Seminar. I just hope I apply what I learned.
- Facility was good in most all respects. Dave, Amos, and Andy were all very articulate. All did an excellent job of presenting the seminar material. In addition all three were very nice, as were all the seminar participants. EXCELLENT SEMINAR!! (Torrence, 1991, pps.5,7,9-10)

Field reports of improvement in the instructional quality of the program over the years has been attributable to the seminar program. Other factors such as youth, enthusiasm and a more dynamic industry could account for some of the seminar acceptance but has never been measured as a weighted factor. While the immediate seminar evaluation is consistently positive, there is evidence of cognitive "overload".

Obviously, a meaningful measure of the effectiveness of the Level I Seminar would be a rigorous measure of change in instructor performance with some form of pre and post seminar performance checklist. This form of data is rarely generated. A report on forty-five Fortune 500 companies in 1988 showed that while 100 percent of the companies employed participant reaction forms in their evaluation, only 30 percent used measures of learning and only 15 percent used measures of behaviors (Brandenburg & Schultz, 1988). Given the national scope and the size of the staff, this type of quantitative evaluation is not feasible.

Level I is the first of three Training the Instructor seminars. To reinforce existing concepts and to further develop certain areas of persistent concern that was recorded, a Level II Train the Trainer seminar was developed and has been offered for the past six years. Level II is offered to instructors who continue in the Program during the second year of instruction beyond the Level I Seminar. This gave the Program an opportunity to address all of the instructors in an informal, supportive environment to perform a qualitative evaluation of the impact of the Level I seminar.

Qualitative evaluation differs with quantitative evaluation in philosophic orientation. Quantitative evaluation conforms to the rigors of experimental and quasi-experimental educational and psychological research methodology such as that expounded by Campbell and Stanley. The quantitative paradigm emphasizes the testing of hypotheses. Often, this requires very large numbers to provide meaningful statistics.

> *Quantitative research emphasizes standardization, precision, objectivity, and reliability of measurement as well as replicability and generalizability of findings. Thus, quantitative research is characterized not only by a focus on producing numbers but on generating numbers which are suitable for statistical tests.* (Schofield & Anderson, 1984, pps.8-9)

Most educational evaluators view it as the ideal. Strict adherence to this methodology often, however, can preclude the opportunity to gather meaningful data.

Qualitative evaluation has been gaining in general acceptance since the 1970's as an alternative or parallel paradigm. The dichotomy of the two paradigms has been described as the distinction between the "naturalistic" and "scientific" paradigms. Qualitative methodology utilizes subjective measures.

> *Qualitative methods consist of three types of data collection: (1) in-depth, open-ended interviews; (2) direct observation; and (3) written documents, including such sources as open-ended written items on questionnaires, personal diaries, and program records.* (Patton, 1987, p.7)

Qualitative and naturalistic methods were largely shunned by educational evaluators prior to the 70's as producing unacceptably "soft" data. Analysis methods for qualitative data usually involve some form of analytic induction. Analysis depends upon the nature of the data and the conceptual framework employed in the analysis.

> *[Qualitative inquiry] (a) is conducted in natural settings, such as schools or neighborhoods; (b) utilizes the researcher as the chief "instrument" in both data-gathering and analysis, . . .(c) emphasizes "thick description", that is, obtaining "real", "rich", "deep", data which illuminate everyday patterns of action and meaning from the perspective of those being studied . . .(d) tends to focus on social processes rather than primarily or exclusively on outcomes, (e) employs multiple data-gathering methods, especially observation and interviews, and (f) uses and inductive approach to data analysis, extracting its concepts form the mass of particular detail which constitutes the data base . . . . .*(Schofield & Anderson, 1984, p.9)

A qualitative evaluation of the seminar effectiveness in measuring change was feasible.

Potential problems that evaluators may encounter in collecting evaluation information fall into two categories: one, problems of cooperation or access to data; and two, technical problems in data collection. The data collection and analysis in this evaluation was from data amassed at the Level II seminar and corroborated by student evaluations that were made available to the evaluator, instructor interviews, and interviews of Local Joint Educational Program administrators.

As part of the the "warm-up" exercise at the beginning of the Level II seminar, the question is posed as each participant exchanges his/her name and some personal vita: What is the most important thing that you now do as a result of attending the Level I seminar? As each responds, the data is recorded on a flip chart for posting and comparison. Each instructor responds to only one performance change. Each response reflects the single most important change in his/her repertory of instructional techniques as recalled from the Level I seminar. These statements of performance change have been collected over time. Each statement has been assigned to one of the competency areas and tabulated. Table 3 is a summary of the responses with their assignment to the appropriate competency area and the percent In that the data were analyzed by this reporter, the inter-rater reliability factor is null. After competency area assignment was made, the data were reviewed by the consultants for corroboration. No differences in assignment were noted. Table 4 is a summary of the competency areas by percent of responses.

Table 3

SUMMARY OF SEMINAR RESPONSES WITH COMPETENCY AREA ASSIGNMENT

Response	Competency Area
• Using visuals	4
• Using overhead projector	4
• Better planning	2
• Sensitive to personal appearance (hands in pocket)	7
• More eye contact	5
• Better preparation	2
• Better lesson plans	2
• Write objectives and use it as focus	3
• Advance preparation	2
• More class participation	3
• Use of "hand on" bring ins	4
• Prepare lesson plan	2
• Hand-on materials	4
• Organize Class seating ("U" shape)	3
• Use overhead	4
• Use flip chart	4
• Use of visual aids	4
• Use of Springboards	2
• More class participation	3
• Application of videos	4
• Better classroom layout	3
• Better use of media, especially videos	4

Table 3 Cont.

SUMMARY OF SEMINAR RESPONSES WITH COMPETENCY AREA ASSIGNMENT

Response	Competency Area
• Ways to connect with students	5
• Classroom control	3
• Making a lesson plan	2
• Set objectives	2
• Get student involvement	4
• Use of flipchart	4
• Ask more questions	6
• Use more media: overhead, flipchart, etc.	4
• Bring in "hands on"	4
• More use of overhead	4
• More discussion/less lecture	6
• Use of visual aids	4
• Better planning	2
• Use of computers	4
• Flipcharts and overhead	4
• Smaller class	3
• Use of classroom equipment and E- Lab	4
• Lesson plans structure	2
• Better questioning techniques	7
• Use of overhead projector	4
• Use of chalkboard	4
• More group discussion	6

Table 3 Cont.

SUMMARY OF SEMINAR RESPONSES WITH COMPETENCY AREA ASSIGNMENT

Response	Competency Area
• Better class involvement	6
• Observe students and draw them out	5
• Focus on students	3
• Creating visual materials	4

Table 4

SUMMARY OF COMPETENCY AREAS BY PERCENT OF RESPONSES

Competency Area	Percent of Responses
1. Learning Theory and Practice	0%
2. Planning for instruction- Instructional Analysis	20.0%
3. Management of the Instructional Process	16.7%
4. Presentation Techniques	43.7%
5. Motivation- Basic Motivation Techniques	6.3%
6. Strategies for Teaching Techniques	8.3%
7. Communication	4.2%
8. Evaluation	0%

A review of the data required interpretation. Qualitative evaluation allows for flexibility in analysis. Competency area four, Presentation Techniques-Utilizing Media for Instruction, Promoting Learner Participation and Designing/Producing Instructional Materials accounted for almost one-half of the total responses. Much of this could be explained by the highly manipulative nature of this strategy. The most encouraging aspect of these responses was the diversity of the media forms reported as being employed.

All areas except areas one and eight had a reasonable impact on the instructors performance. It would appear that competency area one, Learning Theory and Practice- the adult Learner, and competency area eight, Evaluation- Instructor/Learner Assessment Techniques generated no responses. Interviews with instructors uncovered probable explanations.

Competency area one dealt with the concept of learning and with the psychology of adult learning. The competency area was basically a cognitive learning experience. Any understanding of adult learning requirements would be expressed as sensitivity to change in performance in the other areas. The change in other areas, however, could not be assumed to be the result of acting upon the cognitive learning of area one. The amount of retention of adult learning concepts had to be measured.

Competency area eight deals with the concepts and practices of evaluation. The Program provides for summative evaluation through the use of Standardized Unit and Module examinations. These exams are carefully controlled and form part of necessary communications with the central administration. Therefore, any change in instructor performance would have to come from personal testimonies of novel uses of evaluation for formative evaluation. These personal testimonies had to be gathered.

Each seminar has a pretest and a posttest to gather "summative" data regarding the mastery of content as well as a "formative" measure of the success in presenting the content. The Level II Pretest includes several questions dealing with cognitive concepts that were presented in Level I to review retention of presented information. The pretest is collected at the beginning of the seminar before any review of previous material is made. Several questions were used to gather information about the retention of cognitive concepts regarding learning theory, competency area 1; and about evaluation, competency area 8. Table 5 is a summary of the relevant questions and the pretest performance on each item.

The high percentages of recall on those questions addressing cognitive information on adult learning suggests a functional knowledge of general adult learning psychology sufficient to sensitize the instructor to be amenable to performance change in the other competency areas. The acceptable distribution of responses over these areas suggests that this sensitivity is contributory. This suggests performance change in Competency Area one, Learning Theory and Practice- the Adult Learner.

On the second day of the Level II seminar, a presentation to build upon the basic evaluation information presented in Level I is given. The purpose is to develop formative evaluation techniques to help improve classroom instruction. To determine the impact of the Level I presentation, instructors are asked: "Other than giving the Unit and Final exams, what other ways do you determine if the students are learning the material?" Consistently, instructors acknowledge use of questioning techniques to

Table 5

SUMMARY OF RELEVANT PRETEST QUESTIONS AND RESPONSE SUMMARIES

Level II Pretest Questions

7. Generally, adult learners are

(98)*A. less easily discouraged

(1) B. less accepting of change

(1) C. less fearful of failure

(0) D. less self-conscious and cautious

(0) E. I don't know

8. The NEIEP instructor can maximize trainees' feelings of success and interest by

(0) A. not disclosing the learning goals

(0) B. use difficult questions during discussion

(92)*C. make instruction relevant to real world practice

(8) D. reward the trainees frequently

(0) E. I don't know

9. A major problem encountered by adults learners returning to the classroom is

(0) A. poor eyesight

(10) B. forgetting how to do math problems

(89)*C. unlearning mistaken knowledge and procedures

(1) D. lack of respect for the instructor

(0) E. I don't know

* Indicates correct answer

Table 5 Cont.

SUMMARY OF RELEVANT PRETEST QUESTIONS AND RESPONSE SUMMARIES

Level II Pretest Questions

14. Trainees learn most effectively when the instructor

(10) A. models desired behaviors

(8) B. maintains a reasonable level of anxiety in the classroom

(4) C. criticizes behaviors, not people

(77)*D. focuses upon learners' needs and problems

(1) E. I don't know

28. A major rationale for NEIEP Instructors to conduct "self-evaluation" procedures is to

(89)*A. evaluate and improve their own performance

(0) B. single out the problem trainees

(0) C. locate mistakes in the Modules

(9) D. give feedback to successful trainees

(2) E. I don't know

50. Most adult learning is

(1) A. based on a single approach

(91)*B. self-directed

(1) C. similar to adolescent learning

(6) D. based on guided discussion

(1) E. I don't know

* Indicates correct answer (Torrence, 1991, pps.21-26)

provide feedback. Also, when asked: "What do you do to evaluate your own teaching ability?" Statements of formative evaluation techniques Consistently include:

- Video and audio taping of their classes
- Giving ungraded "pop" quizzes
- Creating their own unit exams
- Allowing the students to evaluate the instructor.

These responses suggest performance change in Competency Area eight, Evaluation-Instructor/Learner Assessment Techniques.

Based upon the data, several inferences concerning the impact of the Level I seminar can be made. In that the data questionnaire eliciting responses of performance changes is limited to only one statement, it must be assumed that other changes take place in other categories. Based on the number of incidents of stated performance changes relating to competency areas 2 through 7, Planning for instruction-Instructional Analysis; Management of the Instructional Process- The Process of Instruction and Selecting and Evaluation Media for Instruction; Presentation Techniques- Utilizing Media for Instruction, Promoting Learner Participation and Designing/Producing Instructional Materials; Motivation- Basic Motivation Techniques; Strategies for Teaching Techniques; and Communication- Effective Speaking Techniques and Eliciting Learning Feedback; it can be inferred that:

1. Students learned and put into practice to some degree various planning techniques, altered their management of the instructional process, altered their presentation techniques, used motivation techniques, tried various strategies for teaching, and altered their communications style.

Given the high degree of cognitive retention of material covered in Competency Area one, Learning Theory and Practice- the adult Learner, it can be inferred that:

2. Students retained an acceptable amount of information regarding adult learning theory.

Given the functional knowledge of general adult learning psychology sufficient to sensitize the instructor to be amenable to performance change in the other competency areas and the acceptable distribution of responses over these areas, suggesting that sensitivity is contributory, it can be inferred that:

3. The instructors learned and put into practice to some degree knowledge of adult learning theory.

Given the instructor feedback of employment of practices using evaluation techniques presented in Competency Area eight, Evaluation- Instructor/Learner Assessment Techniques in the Level I seminar to generate formative evaluation suggesting performance change, it can be inferred that:

4. The instructors learned and put into practice to some degree evaluation and assessment techniques.

In that all the competency areas have been involved in cognitive retention and/or performance alteration, it can be inferred that:

5. The Level I Train the Trainer seminar was successful as an intervention in providing functional basic cognitive information and promoting positive performance changes over time.

While this methodology would not be considered as an experimental design in the traditional quantitative evaluation sense, it is valid empirical data hence an appropriate qualitative method to ascertain the relative effectiveness of the Train the Trainer intervention in order to make gross generalizations regarding retention or rejection. Qualitative inferences suggest positive functional performance of contract.

Prepared and submitted by David R. Torrence, Ed.D., Staff Assistant for Instructional Development, 800/228-8220 ext.15.

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